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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/473,495	12/28/1999	TETSUYA ATSUMI	M2009-13	1052

7590 06/06/2002

MORRISON LAW FIRM
145 NORTH FIFTH AVENUE
MOUNT VERNON, NY 10550

EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

9

DATE MAILED: 06/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/473,495

Applicant(s)

ATSUMI ET AL.

Examiner

Justin R Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. The application has been corrected to properly identify it as a divisional and not a continuation of US Serial Number 09/193,928.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In describing the manufacture of the angled layers, applicant initially states, "forming a first angled layer from second and third fiber material" and subsequently states, "bonding said second and third materials together to form said first angled layer". It appears that the first angle is formed as a result of the bonding step; however, as currently drafted, the claim suggests two different steps: forming and bonding. It is suggested that applicant amend the claim to read --forming a first angled layer by bonding second and third fiber materials, such that the fibers of said second material form a first angle with the fibers of said third material--. The use of such language better defines the scope of the claimed invention in that it positively recites the bonding of the fibers prior to wrapping in accordance to the limitations of the claimed invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (US 3,646,610, of record) in view of Sugiyama (JP 08131588, of record), Kusumoto (US 6,106,413, of record), Berg (US 5,984,804, newly cited), and the Admitted Prior Art (Page 1, Lines 18-25). As stated in Paper Number 6, Paragraph 2 and best depicted in Figure 17, Jackson discloses a method of making a golf club shaft comprising a first angled layer (62'), a first straight layer (66'), a second angled layer (68'), and a second straight layer (72'). The reference, however, fails to suggest a first and second reinforcement layer in accordance to the limitations of the claimed invention to define an innermost and outermost layer on the mandrel, respectively, and further fails to expressly describe the angled layers as being bonding together prior to being wrapped. Regarding the first (innermost) reinforcement layer, Sugiyama is directed to a golf club shaft comprising a first reinforcement layer, a first straight layer, and a first angled layer and suggests that a first reinforcement layer is especially important in proximity to a first straight layer in order to prevent separation and optimize flexural rigidity (Abstract). Regarding the second reinforcement layer, Kusomoto suggests that outer reinforcing layers are conventionally used to reinforce the end portion of golf club shafts, in accordance to the limitations of the claimed invention, as depicted in Figure 5 by

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applicant (Column 13, Lines 11-15). With respect to the formation of the angled layers of Jackson, although the reference suggests that the glass fibers are interlaced or braided, it is well known in the golf club art that such layers can be alternatively formed in an overlapping fashion, as evidenced by Berg (Column 4, Lines 54-65), and in view of the Admitted Prior Art, which discloses (a) the conventional use of bonding individual prepegs to form angled layers (analogous to overlapping pattern) and (b) the conventional use of wrapping individual prepegs layers from sheet form, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the straight layers and angled layers in accordance to the limitations of the claimed invention, as set forth below.

The golf club shaft of Jackson, as depicted in Figure 17, contains a first angled layer, a first straight layer, a second angled layer, and a second straight layer. It should be noted that an additional reinforcement layer or straight layer (60') is also present in this embodiment. Although Jackson does not specifically describe a first and second reinforcement layer, the reference does state, "other and additional layers could be incorporated into the shaft" (Column 2, Lines 60-62). Thus, in view of Jackson and conventional golf club shaft technology, one of ordinary skill in the art at the time of the invention would have been motivated to include a first and second reinforcement layer, as previously mentioned. In particular, Sugiyama describes the benefits of optimized flexural rigidity and decreased separation when a first reinforcement layer is positioned inward and adjacent an innermost straight layer, which is the exact configuration of Jackson. Also, the use of a second reinforcement layer to define an outermost layer is extremely well known and conventional, it being noted that Kusomoto and the applicant

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describe the same second reinforcement layer in the grip portion to reinforce the end portions.

Regarding the formation of the angled layers, Jackson suggests that the fibers are interlaced or braided. Berg, however, suggests that angled layers can be formed by one of two methods: interlacing/braiding or forming an overlapping pattern. Thus, one of ordinary skill in the art at the time of the invention would have readily appreciated the formation of angled layers in Jackson by overlapping a plurality of fibers since such a method is recognized as defining an equivalent and alternative means to form angled layers in golf club shafts. The claimed invention, however, requires that materials (first and second fibers) used to form the angled layers are initially bonded and subsequently wrapped around the mandrel. Although the combination of Jackson and Berg suggest a spiral wrapping of first fiber material followed by a spiral wrapping of second fiber materials and subsequent bonding, the Admitted Prior Art recognizes the conventional use of bonding prepegs layers prior to wrapping in order to form angled layers. This method forms a similar product to that of Jackson in view of Berg in that the first and second materials of the Admitted Prior Art are oriented in an overlapping fashion. One of ordinary skill in the art at the time of the invention would have recognized the method described by the Admitted Prior Art as an equivalent alternative, which eliminates the complicated processing associated with spiral winding or interlacing/braiding. Also, with respect to the formation of the straight layers, the Admitted Prior Art describes the conventional use of wrapping prepegs layers as an alternative to spirally wrapping fiber materials (Page 1, Lines 9-17). Thus, in view of the Admitted Prior Art, one of ordinary skill in the art at the time of the invention would have recognized the formation of all the

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layers of Jackson by wrapping prepeg layers since this method represents a well known and conventional means to manufacture golf club shafts.

Lastly, regarding the angle and thickness of the second angled layer, it is evident from Figure 17 that the angled layers of Jackson (62' and 68') are defined by the intersection of fiber materials at a large angle (appears to be roughly 90°). Furthermore, one of ordinary skill in the art at the time of the invention would have readily appreciated the range of the claimed invention (70°-150°) as being broad and conventional, as evidenced by Berg (Column 4, Lines 54-65). With respect to the thickness of the second angled layer of Jackson, it is the examiner's position that the thickness would fall between 0.04 and 0.1 millimeters, as these dimensions fall within the conventional ranges used in similar golf club shafts.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (Page 1, Lines 9-24) in view of Jackson, Sugiyama, and Kusumoto. The Admitted Prior Art discloses a well known and conventional method of forming golf club shafts in which reinforcing fibers are lined up in a "one-directional" pre-impregnation and subsequently wrapped around a tapered mandrel. Furthermore, the Admitted Prior Art describes the specific formation of angled layers by bonding individual layers of angled fibers. However, the Admitted Prior Art is silent with respect to any specific configuration of straight and angled layers. Jackson, as best depicted in Figure 17, is directed to a golf club shaft comprising a first angled layer, a first straight layer, a second angled layer, and a second straight layer and further states that additional layers can be incorporated into the shaft (Column 2, Lines 60-67). Regarding the claimed first and second reinforcement layers, Sugiyama and Kusumoto suggest the use of these layers,

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respectively, to optimize flexural rigidity and reinforce the grip portion of the shaft.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a golf club shaft with the claimed six layer structure of Jackson in view of Sugiyama and Kusomoto by wrapping straight layers and bonded angled layers in a conventional method, in view of the Admitted Prior Art, as set forth below.

The Admitted Prior Art specifically describes the use of prepreg layers to form straight layers and the use of individually bonded layers to form angled layers. The Admitted Prior Art, however, is silent with respect to any specific combination of straight and angled layers, only providing a general description of conventional techniques used in the manufacture of golf club shafts. However, one of ordinary skill in the art at the time of the invention would have readily appreciated the six layer structure of the claimed invention in view of Jackson, Sugiyama, and Kusomoto. Jackson describes a golf club shaft formed of first and second angled layers and first and second straight layers in order to provide adequate shear strength and strength with respect to lateral bending of the shaft and the application of torsional forces. The first and second reinforcement layers of the claimed invention, though not mentioned by Jackson, are well known to optimize the flexural rigidity and reinforce the grip end portion of the shaft, respectively, as evidenced by Sugiyama and Kusomoto. In particular, Sugiyama suggests the importance of a first reinforcement layer inward of a first straight layer, which is the identical configuration of Jackson. Also, the claimed second reinforcement layer is depicted as extending over the grip end portion in an analogous manner to that depicted by Kusomoto. Thus, the use of a first and second reinforcement layer in

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Jackson would have been readily appreciated by one of ordinary skill in the art at the time of the invention.

The Admitted Prior Art, which describes the same manufacturing techniques of the claimed invention, is silent with respect to any combination of angled and straight layers. As set forth above, the combination of Jackson, Sugiyama, and Kusomoto suggest the same six layer structure of the claimed invention, it being noted that Jackson specifically suggests the use of other and additional layers. Therefore, one of ordinary skill in the art at the time of the invention would have readily appreciated the six layer structure of Jackson, Sugiyama, and Kusomoto in the method detailed by the Admitted Prior Art since the six layer structure provides great shear, torsional, and lateral bending strength, improved flexural rigidity, and optimized reinforcement in the grip portion.

Response to Arguments

7. Applicant's arguments with respect to claim 20 have been considered but are moot in view of the new ground(s) of rejection. In response to the office action dated October 9, 2001, applicant has argued the following issues: none of the layers of Jackson are formed from materials having fibers aligned along a single direction and strands 63' and 64' do not form cross layers and do not form any angle. Regarding the first issue, it is clearly evident from Figure 17 that the first and second straight layers are formed of fiber materials that extend in the same direction, that being the longitudinal direction. Furthermore, the first and second angled layers are formed of first materials that are oriented in the same, first direction (angled at roughly +45 degrees with respect to longitudinal axis) and second materials that are oriented in the same, second

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direction (angled at roughly -45 degrees with respect to longitudinal axis). Thus, the first and second fiber materials are aligned in a first and second direction, respectively, and do cross or intersect one another to form a large angle. It is acknowledged that the angled layers of Jackson are interlaced or braided and do not form "cross layers" in the sense that "cross layers" result when fiber materials are disposed in an overlapping fashion. Berg, however, is being applied to illustrate the conventional use of either interlacing/braiding or overlapping fibers in order to form angled layers in golf club shafts. As such, one of ordinary skill in the art at the time of the invention would have readily appreciated the formation of angled layers by overlapping fibers (analogous to disposing one sheet of angled fibers over an additional sheet of angled fibers) in the method of Jackson, as set forth in the rejection above. Therefore, in view of these teachings and the Admitted Prior Art, one of ordinary skill in the art at the time of the invention would readily appreciated the bonding of individual fiber sheets (prepegs) to form an angle prior to wrapping, as requiring by the claimed invention.

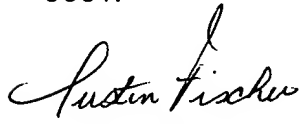
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Justin Fischer

June 3, 2002


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700